Hawaii Environmental Health Administration

Information Technology Transition Plan

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Introduction

The Environmental Health Administration's (EHA) Environmental Information Manager (EIM) position is vacant as of November 26, 2007 after a 1 year, 11 month tenure by John Diehm. Many Information Technology (IT) projects are already underway within the EHA to update our systems to **web-based** applications with SQL server backend databases. This document, the Information Technology Transition Plan, describes critical transition actions to take during the time that the EIM position is vacant to maintain the momentum that the new web-based systems described below have produced. This plan also updates the status of both EHA-wide undertakings and branch specific projects. Please see the section in this document on Current Projects for a discussion of tasks that are project specific. This introductory section discusses actions that are EHA-wide issues. The intended audience is the Deputy Director for Environmental Health, members of the Information Management Planning Team (IMPT), and new candidates for the EIM position. The completed Information Technology Transition Plan addresses:

    EHA-wide Critical Transition Actions,
    critical transition actions for Current Projects,
    Grant Objectives and the 5 Year Plan,
    Strategic Architecture,
    The Developer Environment. and
    Hardware in place at the EHA.

EHA-wide Critical Transition Actions

Identify and Obtain Resources

Identify who can operate and maintain the existing EHA IT system of Microsoft web-based applications written in Microsoft Visual Studio® .NET (ASPX pages in C#) and their SQL Server backend databases.

Plato, Russ and Marsha.

Identify who can meet with vendors (Denault, Windsor).

Terry Teruya, Stacey Shintani & Marsha can work with Denault.
Marsha and Plato can work with Windsor.

Identify who can provide vendors necessary access, and evaluate their work

Terry Teruya, Stacey Shintani & Marsha can work with Denault.
Marsha and Plato can work with Windsor.

Professional Services RFP

An RFP was issued on November 14, 2007 that requests services that will aid the EHA in meeting grant objectives.
The tasks that remain are:
    select a vendor,
    sign a contract with them, and
    implement the services.
The IMPT will choose the first projects to be addressed with the IT Professional Services Contract.
Davis Bernstein is the lead

Recruit Environmental Information Manager

ERO is helping with the recruitment organization and process. Dwight Bartolome, Gayle Shida, and others will screen resumes.

Create New IT Position

An amendment to the 2005 NEIEN grant was submitted to the EPA that moved funding from contractual services to personnel. This money will be used to fund the newly created IT Position. This new position is tentatively titled Senior ITS.
ERO will track progress through the process.

ID people who can operate and maintain IT system.

Plato, Russ and Marsha.

Assess Finances; Contractors; Secure Documentation

Identify all encumbered funds, grant and fund balances after encumbrances. (KS)

See the Grant Status Spreadsheet Addendum.?

Identify all incomplete contracts, scheduled visits, remaining tasks and deadlines. (MM)

A Purchase Order has been drafted for the Denault Group to complete Phase II of the HIWQX project. It is recommended that a proposal outlining the cost of Phase II be obtained from the Denault Group and the purchase order be completed for that amount plus 50% for unforeseen project changes and additions.

Windsor Solutions visits need to be scheduled. The first visit, anticipated for January 2008, will implement the TRI data flow and the accompanying TRI reader web application. The first visit will also include planning meetings with the CAB on the NEI data flow. The next visit will implement NEI and begin planning for AQS. Subsequent visits will be set up the same way to complete all the data flows listed in the 2007 NEIEN Grant section.

Collect, create, and post documentation for IT systems (MM/MT)

S:\Division\OneStop\ drive contains e-files and scanned paper files. Marsha will temporarily hold the EIM paper files until the position is filled.

ID Computer Files (MM/MT)

Inventory Assets (MT)

IMPT Assesses Priorities

Ranking of FRS, document management, complaint management, or other projects after e-permits

Decide OneStop grant allocation: between IT and/or business process improvements

Review/learn of proposed program IT projects

Grant Objectives and the 5 Year Plan

The EHA has three National Environmental Information Exchange Network (NEIEN) grants for information technology initiatives.

2003 NEIEN Grant – One Stop Grant
EPA #83135701-0
Project Number 000467

Objectives
- A. Process improvement & efficient data handling
- B. Facility identification standards (consistent w/ FITS2)
- C. Data quality assurance - plans for all databases (DB)
- D. Database upgrades (coordinate & scrub)
- E. Data warehouse (EHA DW)
     A data warehouse (EHA DW) is part of one stop system. Some of its data displayed by the OneStop Application is extracted from programs and some resides in the EHA DW.
- F. Data mapping - Geocode Facility/Site Information

5 Year Plan (Nov. 2006)	5 Year Plan Proposed Update (Nov. 2007, pending IMPT approval)
Phase 2, short term	Phase 2, short term
A. IM Framework (governance)	A'. IM Framework (governance) (done/review?)
B. Strategic architecture	B'. Strategic architecture
C. Pilot implementation (WWB e-permitting)	C'. Pilot implementation (WWB e-permitting)
D. Start e-permitting	D'. Start e-permitting
E. Network node	E'. Network node (done, 10-06)
Phase 3, long term	Phase 3, long term (priorities set by IMPT)
F. Extend pilot with new features	F'. Document management
G. Deploy pilot to other branches	G'. Complaint management
H. Geocode data	H'. Geocode data
I. EHA data warehouse R1	I'. EHA data warehouse (partly done, 11-07)
J. EHA data warehouse R2	J'. More EHA data warehouse
K. Public access portal	K'. Public access portal
L. Time & Cost accounting	

2005 Hawaii NEIEN Implementation Grant
EPA #83258301
Project Number 000370

Objectives
1. Expand facility index (FRS) to all programs
2. Reconcile DOH facility index (FRS) against EPA's FRS
   This was first done for HEER SDAR facilities in10-06 and is being updated.

3. Establish Exchange Network node in DOH (done 10-06)
4. Regular FRS data flows between HI node & EPA's CDX (central data exchange)
The initial flow was done 10-06 via the Exchange Network.

2007 Hawaii NEIEN Implementation Grant
EPA #OS-83364801
Project Number 000395

Objectives
The purpose of this grant is to fund additional technical initiatives related to the EPA's
Central Data Exchange. Purchase Order 829168 for $150,000 has been made to
Windsor Solutions to add the following plug-ins and related software. A plug-in consists
of an executable file and a SQL Server database.

Data Flows to EPA via DOH HICDX node & Exchange Network
1. TRI – Toxic Release Inventory - HEER
   TRI is a one way data flow from the EPA to the States. An MOA must be
   in place between the EPA and EHA before the TRI flow can be put in
   place. The MOA has been drafted and sent for signature. The signing
   authority for the Department of Health is the Deputy Director for
   Environmental Health. The MOA releases facilities that report to the TRI
   program via EPA's CDX using the TRI-Made Easy (*TRI-ME*)
   reporting tool from their reporting burden to the state by automatically
   transferring to the their data to the state node (HICDX). Windsor
   Solutions will also provide a TRI Reader web application for viewing
   TRI forms as part of the work under PO 829168.
2. NEI – National Emissions Inventory - CAB
3. AQS - Air Quality System - CAB

Possible Flows
These will be done if they are within the budget of the grant.
1. WQX – Water Quality Exchange - CWB
2. SDWIS - Safe Drinking Water Information System- SDW

Current Projects

Exchange Network Node

Establishing he Hawaii Exchange Network Node (HICDX) is an execution of objectives outlined in the Five-Year-Plan, a deliverable of the 2003 National Environmental Information Exchange Network (EN) Grant (EPA #83135701-0) and the 2005 Hawaii NEIEN Implementation Grant (EPA #83258301).

Hardware for HICDX was installed by the EIM in 2006. The node is a server located in the HISO data center. The server name is HICDX. Its Public URL is HICDX.DOH.HAWAII.GOV.

Windsor Solutions was hired to implement the node under EPA Grant #83258301-0. The FRS plug-in that flows FRS data via the node gets its information from the OneStop server. The OneStop server contains a database with the same name (OneStop) that houses facility data in a Facility Information Template System Version 2 (FITS2) compliant physical database. The OneStop server also hosts a web application with the same name (OneStop application).

Additional node flows will be implemented under the 2007 NEIEN Grant. Both the 2005 and 2007 grant work plans are addendums to this document.

Current Status
HICDX is operational as of October 2006.

Critical Transition Actions
Continue to develop data transfer methods that extract data stored in various software packages throughout the branches and use it to populate the OneStop database by importing the data into the FRS tables of the OneStop database. The grant identifies funding that focuses on importing ALL facility/sites throughout EMD.

Coordinate Windsor Solutions projects based on Grant Work Plan.

Perform a thorough analysis of underlying EHA data systems that contain FRS data. In some cases it may be better to build out a new system prior to extracting data from an existing system. Extraction routines and coding efforts are time consuming. That time might be better spent rebuilding a database prior to the extraction effort.

Key Contacts
Simon Watson, Project Manager Windsor Solutions - Node Implementation Contractor, Mark Chmarny, Windsor Solutions - Node Implementation Contractor, Technical
Pat Garvey, EPA – Exchange Network Liaison
Joe Carioti, Exchange Network Node Help Desk

OneStop (Five-Year-Plan)

The OneStop System is an execution of objectives outlined in the Five-Year-Plan and the 2003 National Environmental Information Exchange Network (NEIEN) Grant (EPA #83135701-0). The OneStop System includes the state Facility Registry System (FRS), project management, grant management and reporting elements. The state Facility Registry System is the key that links the environmental interests of different programs so they can share information with each other and the EPA. FRS is described more in a separate entry below. The OneStop System is comprised of the following:

I. OneStop application
   a. The OneStop application is a web interface for inserting, updating, deleting
      and viewing FRS information.
   b. Project management
   c. Grant management shows drawdown of grant monies. Currently, line items are
   imported from a spreadsheet from ERO.
   d. Reporting
   At the time of his departure, the EIM was importing sample facilities from each
   program and developing a custom SDAR application for the HEER Office.
II. OneStop database
   This is the current EHA data warehouse (EHA DW). It is intended that the EHA DW
   will expand and may be broader than this database; it can accommodate facility/sites
   from any branch. The state FRS currently includes facility/sites from these
   environmental interests:
   a. HEER
      a. Releases
      b. Sites under Investigation
      c. Tier II
   b. WQX (in development) (Phase I near completion)
      a. Beach Stations
   c. NEI   d.   TRI
   e. AQS
   f. UST
III. OneStop Server
   The OneStop Server contains the hardware/software to run the Onestop system.
   (See diagram and strategic architecture)

Current Status
Microsoft SQL Server 2005 is the database platform and the web application was developed in Microsoft Visual Studio 2005. At the time initiation of development these were the latest versions available from Microsoft.

The FRS portion of the OneStop database (which is the current data warehouse) has been built and meets Facility Identification Template for States (FITS2) which is a normalized model for developing databases. The EPA Exchange Network FRS schema is used for the data flow of the FITS2 data to the EPA. FITS2 was developed before the EPA Exchange Network FRS schema and the two have slight differences but are compatible.

The WWB consolidated and upgraded multiple IWS databases.
   The WWB database is not part of FRS & does not report to the EPA.
   The WWB application stands apart from the OneStop application.
   The WWB system uses the same software as OneStop system.

An RFP has been issued for a wide range of services related to information management to assist the EHA in meeting OneStop Grant objectives.

Critical Transition Actions
Continue to develop data transfer methods that extract FRS data from EMD systems and populate the EHA DW. This will allow for access to multi-branch information such as permitting, enforcements and compliance activities.

Leverage object oriented programming by using the existing source code library. Two environmental interest systems are now in development (WQX, SDAR), which use the OneStop version of FRS as the foundation for tracking the physical location of an environmental interest activity. Fifty percent (50%) of the source code for WQX and SDAR is from the FITS/FRS OneStop architecture.

Focus the remainder of the OneStop grant on:
   Using this FITS/FRS architecture as the basis for systems consolidation (within, or between programs, or both),
   Centralizing reporting to the EPA through the HICDX node,
   Centralizing internal EHA reporting, and
   Facility reconciliation.

Acquire staff to process the RFP through contract signing and implementation.

The IMPT will set priorities from among the IT improvements recommended above and workflow process improvement activities, and activities to meet other grant objectives.

Key Contacts
Marsha Mealey, Database Manager HDOH HEER Office – HEER IT Point of Contact

Facility Registry System (FRS)

The State FRS is a centrally managed database that stores information on and identifies facilities (sites or places) that are subject to environmental regulation or are of environmental interest. It is part of the larger OneStop database. The FRS is the heart of the data warehouse. (EHA DW)

Current Status
The FRS consists of these key components. These components are represented as tables in the physical database and include:

Facility Site
 The essence of what the programs consider a "facility," a "source," a "site," etc.
Environmental Interest
 Program-specific interests in a Facility Site (e.g., does the Facility Site have an air permit, is the Facility Site a cleanup site)
Alternative Identification
 Identification numbers already in use by the various programs
 (e.g., in permit files), as a "pointer" towards more detailed program-specific information about the Facility Site
Geographic Location
 Physical location of the Facility Site
Industry Classification
 Type of industrial activity conducted or services produced at a Facility Site
 Industry Classification uses the Standard Industrial Classification (SIC) and North American Industrial Classification System (NAICS) codes.
Affiliation
 Roles and responsibilities of external organizations
  Organizations
  Individuals
  Mailing Address

The FRS requires data transfer methods that extract data from each environmental information source, such as a branch or program database. The EIM and HEER are currently developing data transfer methods (scripts) that extract data from branch level databases and populate the FRS.

The EIM and HEER have been working on the coding effort for the Geographical Coordinates and SIC/NAICS codes. EHA needs to be able to manage geographic information via a web interface before it is sent to EPA via the HICDX; right now the geographic data can be sent only without such prior management.

Critical Transition Actions
Start a project on geocoding project in 2008.

Geocoding can greatly increase the usefulness of information by making it available for visual display on maps; however, there are a number of issues to be decided with the advent of tools like Google earth, Microsoft maps and Earth911. Defining the best practices for managing geospatial data both internally and on the public facing web site will take a substantial amount of envisioning and planning. The EHA needs to clarify

what it wants to display and understand what each of the commercial vendors can provide and what they will require from EHA implement their product in order to determine EHA's path. It must be determined if it's best to partner with commercial vendors like those listed above or develop everything in-house and or by contracting. With only one GIS resource (Glen), the new demands on GIS could overwhelm him very soon as every request for mapping goes to him.

The goal of the first EIM was to integrate the Geographical Coordinates portion of FRS directly into tools like ARC GIS and Google Earth and allow for basic information to be geocoded upon entry into FRS, perhaps automating base layering.

Geocoding Data is late in the 5 Year Plan. Substantial improvements for this line item in the plan would require planning and coordination at the branch/section level.

Glen and the EIM have briefly discussed standardizing the equipment and processes for geocoding. For example, dictating that branches use only approved geocoding devices. This would allow for seamless integration. As is, branches are buying whatever GPS units they want, not all of which capture data in the same manner and in the same datum sets.

Key Contacts
Glen Fukunaga, HDOH Environmental Planning Office – GIS Resource

WQX

The Hawaii Water Quality Exchange (HIWQX) project is a Microsoft SQL Server based system that will use the Exchange Network to report ambient water quality sample results from both the probe used at the beach monitoring stations and lab tests from the grab samples collected at the station and processed at State Lab Division. Sample information will be managed electronically from start to finish with no duplicate entry. Start to finish means from scheduling sampling runs by the CWB through data receipt at the EPA. By the end of Phase II the CWB monitoring section will also be able to use these results to publish rapid beach user advisories. This EHA project will integrate *real-time* lab results by allowing the State Lab to enter their information directly into the new HIWQX web application.

PHASE I FEATUES:

   CWB upgraded its Storet MS Access database to Microsoft SQL Server 2005.
   Sample scheduling is now performed in the HIWQX Web Application that was developed by the Denault Group; CWB's contractor. The HIWQX Web Application was written in Microsoft Visual Studio using the C# programming language and the interface is web based using ASPX pages. Hardware for printing bar code labels for the samples was purchased and tested for durability on the wet sampling bottles. A bar code reader was purchased for the State Lab. It will be used on the receiving end and interfaces with the HIWQX Web Application, allowing easy identification of the grab samples by the application.
For fault tolerance reasons field samplers still use Microsoft Excel spreadsheets in field during sample collection and lab reporting.
   Beach Probe Integration:
New analytical hardware, Hach MS5 probes, were purchased that capture and store data to a hand held device during sampling with the probes at the beach station. The hand held devices upload probe readings directly to the HIWQX System.
   Lab Results Interface:
The State Lab enters microbiological result information directly into the HIWQX System.
   WQX Plug-In Integration:
The Denault Group has written a data transfer package to move information from the HIWQX System to the WQX Plug-In database that's part of the Windsor Solutions Plug-In.

Current Status
Phase I is nearly complete. Programming is finished, except for bugs and cosmetic items. All pieces function, however the entire system has not been tested as a completed package. The system will be Beta Tested until Terry Teruya deems it ready for production. A successful exchange of knowledge occurred because the EIM scheduled the contractor developing this system to be on site with Eric Wilson from the Region 9 Storet/WQX group. The first "true" test of the system is underway with Terry Teruya entering sample information in the system and Myron at the State Lab entering the results. This system gets all of its facility data from FRS.

PHASE II FEATURES

Integration of the Chemistry lab into the HIWQX System.

Integration of PDA's with enhanced functionality and GPS capability that replace the current handheld devices.

Reagents Tracking & Instrument Repair History which includes additional MS SQL data tables and web pages in the HIWQX Web Application.

QA/QC testing and analysis procedures (e.g. incorporation of QC samples into sampling schedule.)

Additional Reporting Functionality which will include additional MS SQL data tables and web pages in the HIWQX Web Application.

Beach Advisory Notification and links to C&C beach warnings and UH (jellyfish warnings) which will include additional MS SQL data tables and web pages in the HIWQX Web Application.

Data feed to Public access webpage which will include additional MS SQL data tables and web pages in the HIWQX Web Application.

Data feed to Water Body Systems (WBS), an assessment system where the CWB can compare their water sampling results to standard levels which will include additional MS SQL data tables and web pages in the HIWQX Web Application.

Phase II includes ongoing upgrades and modifications as the system evolves in response to the end users' needs which will include additional MS SQL data tables and web pages in the HIWQX Web Application. In many cases the final design of a software application is derived after it has been released to the user community. The feedback from this community in almost every software application I've ever worked on could not have been identified previously). The contractor only needs to deliver modules as specified by the end users. Any further development will be driven by the end users' needs and/or EPA requirements.

Each feature that is added to HIWQX System represents the reengineering, automation, and process improvement of existing tasks. The consequence of not completing these tasks means that the tasks must either be done manually and/or be left undone. Manual operations are subject to error and require employees to spend time on completing those tasks.

Critical Transition Actions
Complete Phase I and release to production. Updates will be sent to Marsha who will install new application releases from the Denault Group on the OneStop server.

Move web application portion of system to DMZ web server to allow outer island and other external partners to utilize the system.

Determine if CWB will fund Phase II, otherwise funding may come from EIM grants.

CWB and EPO should identify and discuss common issues.

Key Contacts
Terry Teruya, HDOH - Project Sponsor
Marsha Mealey, HDOH - Project Manager
Myron Honda, HDOH – SLD Project Manager
Eric Wilson, EPA – National WQX Contact
Dan Denault, Denault Group - Developer

NEI

The National Emissions Inventory (NEI) is a CAB initiative which encompasses the implementation of a new system for tracking air emissions data which also includes implementing the reporting of data to the EPA via the Exchange Network.

Current Status
This project is very near completion as the CAB has been working on it for over a year. There are two key issues with the project:

1) The implementation of a new software system used for managing emissions information, and
2) The implementation of the NEI data flow and plug-in for the Exchange Network.
The NIF (National Emission Inventory Format) file generated by the new emissions software is NIF 3.0 which is compatible with the Windsor Plug-In.

Marianne and Priscilla have done an outstanding job managing the first issue.

Critical Transition Actions
Bring Windsor Solutions in under PO 829168 to install the plug-in and complete this project.

Schedule Windsor to install, test and validate the plug-in and node flow. Lisa Young, CAB, and Terri Shinsato, SLD can provide access and review Windsor's work.

Key Contacts
Marianne, HDOH - CAB Point of Contact
Priscilla Ligh, HDOH - CAB Point of Contact
Lisa Young, HDOH - CAB Point of Contact
Terri Shinsato, HDOH – SLD Air Surveillance Contact
Simon Watson, Windsor Solutions – Exchange Network Contractor

AQS

The Air Quality System (AQS) Exchange Network data flow is a CAB project for migrating the reporting of AQS data to the EPA through the HICDX node. What makes this project unique is that it encompasses replacing an existing data system prior to implementing the node plug-in.

Current Status
The current system is very old and, in the opinion of the first EIM, needs to be completely overhauled. The server at the state lab literally has duct tape on it. Because this system reports information to the EPA and a production data flow exists on the EPA Exchange Network, the strategy was to overhaul the system and implement the data flow. This will allow us to utilize Windsor Solutions to assist in the project.

Critical Transition Actions
CAB is applying for an Exchange Network grant for the underlying data system replacement work. Coordinate this work with other Windsor node work.

New EIM, or Marsha in the interim, will assist in the review of a potential replacement system(s) to verify that they meet the architectural requirements of Microsoft SQL Server as a database system. This may limit the list of potential replacement systems, but is not the ultimate factor in a selection. In the event an Oracle based system clearly outweighs SQL based products, the first EIM would support the decision to go outside the "recommended" architecture.

Key Contacts
Willy Nagamine, HDOH – Project Sponsor
Marsha Mealey, HDOH – Node Project Manager
Lisa Young, HDOH – CAB Project Manager
Terri Shinsato, HDOH – SLD Air Surveillance Contact
Simon Watson, Windsor Solutions – Exchange Network Contractor

HEER-SDAR

A business unit wide effort to convert from an existing Microsoft Access based data management system to a web based MS SQL based system with much improved data management capabilities.

Current Status
The new system has been custom developed in a software application that uses or "reuses" a substantial amount of code and architecture from both the OneStop application and WWB IWS systems. This system is also integrated with FRS as the Facility/Sites are actually stored in the FRS tables of the OneStop database.

Critical Transition Actions
Continue to coordinate with Fenix.
Procure a vendor to complete the development started by the EIM and HEER.

Key Contacts
Keith Kawaoka, HDOH – Manager HEER Office
Fenix Grange, HDOH – Manager SDAR Section, HEER Office
Marsha Mealey, HDOH – IT Project Manager
Eric Sadoyama, HDOH - SDAR

WWB-IWS

TWWB-IWS is the first true online permitting system that includes real-time data management and payment processing. In the opinion of the first EIM, this should be the strategic direction of all external customer technologies.

Current Status
eHawaii.gov is working on the external portion of the system. They have not given us any hard timeline on a delivery but Harold and Plato have been working very closely with them and I feel confident we may be up and running by the first quarter of 2008.

Critical Transition Actions
Leverage as much as possible the process and fundamentals used in developing a web based application that uses MS SQL as a data store for the Wastewater Branch.

Continue coordination of eHawaii.gov work.

Develop process for importation of eHawaii.gov data since eHawaii.gov will not be updating the WWB database directly. eHawaii.gov will store application information in their database and will create an extract file every night at midnight. An import process will have to be created and schedule to "pick up" the file and import it into the WWB IWS database. Plato will work with eHawaii.gov on developing and implementing this process.

Resolve e-processing and credit card fee payment issues. This apparently requires legislation and maybe an appropriation.

Key Contacts
Harold Yee, HDOH – WWB Project Sponsor
Plato Hsieh, HDOH – WWB IT Project Manager
eHawaii.gov – Payment Processing Vendor

DBC

The Deposit Beverage Container (DBC) web application was developed by a local vendor based on the OneStop architecture. This system will allow recyclers and redemption centers to submit recycling data real-time.

Current Status
The current small purchase contract expired leaving the system incomplete. The two members of the DBC Program team (Shirley and Lauren) and the EIM feel it's in the best interest of the program to use another vendor.

The most recent build of the DBCRecycle application has been placed on the OneStop server for additional testing.

The link to access the site is: http://onestop/dbcrecycle.

Critical Transition Actions
Work with Shirley and Lauren to identify any issues that haven't been already brought forth.
Request a list of recommended vendors from Microsoft's local office.
Procure another vendor to continue development.

Key Contacts
Lauren Willson, HDOH – Project Sponsor
Marsha Mealey, HDOH – Project Manager
Rick Krieger, HDOH – Technical Resource SHWB
Amory Burgess, Island Tech – Developer
Mike Meyers, Island Tech - President

SDWIS

The Safe Drinking Water Information System (SDWIS) manages water quality information and ultimately reports this information to the EPA. An upgrade is available from the EPA that has a web based application and an MS SQL database.

Current Status

This project is also part of the 2007 NEIEN Grant and Windsor Solutions will work with SDW to implement it.

Currently the SDW branch is running a client server based version of SDWIS. This version requires software installed on each individual workstation in order to use the application. By implementing the web based version of SDWIS, a web browser would be all this is required to run SDWIS. If the web based version were installed on a web server in the DMZ (see definition below) the application would be available outside the AAFES building. Users would not be required to be on-site to use the system.

Critical Transition Actions
Utilize Windsor Solutions to install the web based version of SDWIS. Have them create an adapter that would synchronize the data between the existing version of SDWIS and the web based version for a smooth transition. Implement the CDX plug-in for SDWIS by porting data from the web based version of SDWIS. Have both versions run concurrently until the branch is ready to cut over to the new system.

Coordinate work plan with Windsor Solutions. When Windsor Solutions comes out to implement either TRI or NEI plug-ins and node flows, schedule preliminary meetings with SDW to draft strategy agenda for SDWIS migration.

Key Contacts

Doug Nguyen, HDOH – SDW IT Resource

Document Management (SharePoint)

Primarily SharePoint would be used as a document management repository. This should be a joint project between SHW and the HEER Office. They are working separately but doing their best to coordinate the existence of a single SharePoint installation.

Current Status
The HEER Office hired a local vendor to perform an assessment and provide recommendations for an implementation.
The SHW Branch will review the assessment and recommendations and try to leverage the recommendations for their implementation.

Critical Transition Actions
Allow each branch to implement the product independently while Microsoft Consulting architects the system to allow for scalability.

This one's a bit trickier as it is more of an initiative than a specific project or piece of software, and the timing of events is could ultimately cause or save substantial duplication of effort. The ultimate goal is to develop a storage and retrieval system that's scalable to the entire administration, if not all of DOH.

While SHW and HEER could probably share a server and software licensing, they may travel two similar, but different paths. HEER is using a company called Century Computers here in Honolulu that specializes in document scanning. Century is performing an assessment of the work flow and volume of documents and will present their findings by the end of the month; while SHW will be, more than likely, using Microsoft Consulting as Rick has defined the work flow and only needs technical assistance.

You'll note in an email from Rick in SHW that "they will implement the system regardless of HEER and the findings in the assessment" by Century Computers. EHA should attempt to reach an economy of scale for these and related projects.

Key Contacts
Steve Chang, HDOH – SHWB Project Sponsor
Rick Krieger, HDOH – Technical Resource SHWB
Rick, Century Computers, Inc. - Vendor
Rob Hardesty, Century Computers, Inc. - Vendor
Garth Henderson, Century Computers, Inc. - Vendor

StarLIMS (Laboratory Information System)

StarLIMS is a division wide lab information management system. This system was developed by StarLIMS. It is MS SQL based and, fully implemented, would allow for real-time lab reporting.

Current Status
DOCD is currently implementing human sample testing as the first phase.

Critical Transition Actions
Hire StarLIMS directly to perform the implementation of Environmental Lab sections. Identify funding for the Environmental Lab section.

Hire a StarLIMS administrator. StarLIMS administration requires an in depth knowledge of development similar to that used to create the State Lab Web Certificate Renewal system and the WWB IWS systems. These skills are mainly Microsoft based application development skills. This resource could, in theory, also become available to work on 5 Year Plan development projects once the StarLIMS system is installed, tested and stabilized.

Key Contacts
Chris Whalen, HDOH - SLD Project Sponsor
Paul Fox, HDOH – SLD IT Resource

SLD Certifications

The SLD Certifications application is an online registration and renewal system for State Lab Certifications.

This web application and database reside on the HICDX server. This web application requires an SSL Certificate for data encryption. The purchase and renewal of the SSL Certificate are managed by Paul Fox.

Current Status
This is the first complete e-permitting project, although it does not capture payment. The applicant must go through the application process, print the completed application and mail the application in along with a check. The DDEH has since set internet entry, with automatic or manually update in the master program database, as the standard for e-permitting. E-payment is not required for e-permitting but is strongly preferred. Once received at the State Lab, the signed application is reviewed against the data collected by the web portal and approved. Upon approval, an email is sent to the applicant with a web browser link to their renewal.

Phase 1 of the project was rolled out and used for the January 2007 renewals.

A list of suggested features has been created by the lab for a second phase.

Critical Transition Actions
Hire a LIMS administrator with the skills needed to maintain the system or contract out the second phase of development. The same tools and fundamentals used to create the WWB IWS system were used to create the web portal and are mainly Microsoft based application development skills.

Key Contacts
Chris Whelen, HDOH – SLD Project Sponsor
Kent Kitagawa, HDOH – SLD Project Sponsor
Paul Fox, HDOH – SLD IT Resource
Terri Shinsato, HDOH – Technical Resource

EHA Strategic Architecture

The 5 Year Plan was a deliverable under the OneStop Grant described above. The EHA Strategic Architecture is described on pages 1-4, 2-6, and 3-1 to 3-7 of the Information Management 5 Year Plan (5 Year Plan) dated November 12, 2004. There is also a version of the 5 Year Plan dated January 2005 and the page numbering is different between the two versions.

Conceptual Technology Architecture

Conceptual Technology Architecture components are listed in Exhibit 3-2 on page 3-3 of the Five-Year-Plan. Some aspects concerning the conceptual architecture of EHA systems that have already been put in place are discussed below. The discussion of conceptual architecture answers the questions:

   What hardware is needed to accomplish the tasks that EHA has taken on?
   What software should EHA be using?
   What standards exist that apply to EHA's business practices?
   What constraints within the system (State, etc.) affect information technology issues?

NEIEN

The Exchange Network is a means for automated data exchanges with EPA, and potentially, other partners. Standards and schema are available at www.exchangenetwork.net and should be an early consideration in all IT projects design. Proposed decisions not to use EN standards should be explained to the DDEH.

E-permits and e-payments

E-permits and e-payments will be received via software developed by e-Hawaii.gov. The programmatic standard for e-permitting is internet entry, with automatic or manual updated in the master program database, as stated by the DDEH in Oct. & Nov. 2006. No state wide definition has been provided so far. The DDEH does not require e-payment as part of e-permitting but strongly prefers it.

EHA Data Warehouse (EHA DW)

A Data Warehouse to provide storage for and access to selected information from programs independently of the programs' own production databases.

The DW system will provide for storing, retrieving, and managing large amounts of data. The DW software will extract, transform, and load data, provide for fast searches, and advanced filtering. The DW will contain recent snapshots of program data. Non-program people can use the DW freely without slowing down day-to-day operations of the program production database.

Programs (branches) will retain their own database(s) for internal use, consolidating its databases into a single program database, if possible.

Commercial distributed data systems, if used shall be integrated with the EHA DW on a case by case basis using the most efficient methods to avoid duplication of effort.

Data Architecture & Standards (5YP 2-6)

Facility Information Template System Version 2 (FITS2)
> The working guidelines set forth the FITS II core data model. It is a template that states can use for defining, relating, and integrating information on the identity of their Facility Sites.

Facility Registry System (FRS)
> The purpose of the Facility Registry System (FRS) project is to provide EPA with a central database of facility identification records that links all facility oriented program system records. It is the long term goal to have the FRS replace the need for EPA programs to separately and individually collect facility identification data for each media national system.
>
> EHA facility data complies with FITS2, per Pat Garvey of the EPA.

Environmental Data Registry (EDR)
> The EPA's Environmental Data Registry (EDR) is a comprehensive, authoritative reference for information about the definition, source, and uses of environmental data. The EDR supports the creation and implementation of data standards that are designed to promote the efficient sharing of environmental information among EPA, states, tribes, and other information trading partners. The EDR also catalogs data elements in application systems. The EDR does not contain environmental data - it provides descriptive information to make the data more meaningful.

Geographic Information
> The Location Reference Tables (LRT) are a series of tables that store facility-level locational information collected from the program system databases in Envirofacts and from EPA regional data stewards. This information includes geographic attributes (e.g., state, county, ZIP, etc.), coordinate data, and MAD qualifiers (Latitude Measure, Longitude Measure, Source Map Scale Number, Horizontal Accuracy Measure, Horizontal Collection Method Text [or Code], Vertical Measure, Reference Point Text [or Code], Horizontal Reference Datum Name [or Code], and Geometric Type Name [or Code]).

Exchange Network standards.
> The Environmental Information Exchange Network (Exchange Network) is an Internet-based system used to securely exchange environmental and health data among EPA, states, tribes and territories, and other partners. See the section on the Exchange Network Node in Current Projects above.

Technical Architecture & Standards

Technical Architecture & Standards are described in the Developer Environment section below.

IM Structure/Framework (a.k.a. governance)   (5YP, p. 2-7)

Five Year Plan Revision – EHA is currently operating with three groups, not four.
The proposed Information Management Coordinating Group (IMCG) has not been formed.
The Information Management Policy Team (IMPT) is currently meeting monthly.
The Functional Work Group (FWG) and the Information Technology Work Group (ITWG) have met in the past.

Build a Shared Facility Index (5YP, p. 2-5)
See the OneStop and Facility Registry System sections under Current Projects above.

Workflow architecture (5YP, ex. 3-3, pp. 3-3 to 3-6)
The WQX system is an example of Exhibit 3-3 as the CWB application uses OneStop as its Common Operational Store to record the beach stations as Facility/Sites.

Developer Environment

The developer environment describes the Technical Architecture & Standards used in EHA.

Microsoft Server

Microsoft Server 2003 is the server environment at EHA.

Microsoft Active Directory

Microsoft Active Directory is in use for security and sharing.

Microsoft SQL Server

Microsoft SQL Server 2005 is the EHA database platform.

Microsoft Visual Studio® .NET

Microsoft Visual Studio 2005 is used for custom development of web applications.
Microsoft .NET provides the technology to create web services.
EHA uses .NET Framework 2.0

Microsoft Visual Source Safe

Visual SourceSafe 6.0c is the ideal version control system for any development team using Microsoft Visual Studio® .NET. A developer can use Microsoft Visual SourceSafe with any type of file produced by any development language, authoring tool, or application. Using it enables users to work at file and project levels while also promoting file reuse. Its project-oriented features increase the efficiency of managing day-to-day tasks associated with team-based software and Web content development. It's simple enough to use right out of the box, and it's integrated with the development environment developers already work in.

Microsoft SharePoint

Microsoft SharePoint will be used for Document Management. Since there are currently no production servers and only one test server is in use, the decision to use SharePoint should be brought before the IMPT for confirmation.

Web Services

A web-service connected system is able to share information via the web and across different hardware and operating systems.

Web services will use industry-standard protocols defined through public standards organizations such as the World Wide Web Consortium (W3C).

Source Code Location

Each developer should create a folder in the root of their C: drive called Source Code (C:\Source Code). Any application source code whether developed by an external third party or developed in house for your respective branch should reside in this folder and a corresponding Microsoft Source Safe folder should be created and the most recent copy of the source code should be checked in.

Naming Conventions Application Level

Application naming conventions should try to as much as possible identify in generic terms the process their meant to manage. If the name consists of more than one word (ie: OneStop), the words should have capital letters for each individual word in the name. This name should have a corresponding folder called "C:\Source Code\OneStop" where the source code used to develop the application resides.

Developer Controls

ComponentArt is a company that offers developer controls which allow for consistent and robust web application development. This product suite is easy to install and includes sample code in both VB.NET and C#. For more information visit them at: http://www.componentart.com/webui.aspx

ComponentArt offers two distinct product lines: a suite of 11 advanced user interface components for ASP.NET, and a set of next-generation 3D Charting controls for ASP.NET and Windows Forms development.

The latest version of Web.UI combines ComponentArt's unique rendering technology with the power of AJAX to deliver the most advanced set of user interface controls available for ASP.NET.

Glossary

EHA Terminology

Environmental Health Administration (EHA)
　Centrally managed Information Technology projects are under way for the State Lab Division (SLD) and the Environmental Management Division (EMD) but not yet for the Environmental Health Services Division (EHSD).
Environmental Information Manager (EIM)
　A position created in response to recommendations in the 5 Year Plan. In the 5 Year Plan, the position was originally termed Information Management Officer (IMO).
Information Management Planning Team (IMPT)
　The IMPT is chaired by the EHA Deputy Director and is comprised of branch and office managers.
OneStop System
　The OneStop System is an execution of objectives outlined in the Five-Year-Plan and the 2003 National Environmental Information Exchange Network (NEIEN) Grant
　OneStop database
　　This SQL 2005 database is the current EHA data warehouse (EHA DW) for state facility/sites, environmental interests, location information and contacts.
　Onestop application
　　The OneStop application is a web based interface to facility, project, grant and reporting information.
　Onestop server
　　The OneStop Server is the physical hardware that runs the software for the Onestop system.
Facility Registry System (FRS)
　The purpose of the Facility Registry System (FRS) project is to provide EPA with a central database of facility identification records that links all facility oriented program system records.
Facility/Sites
　The public or commercial name of a facility site (i.e., the full name that commonly appears on invoices, signs, or other business documents, or as assigned by the state when the name is ambiguous) subject to environmental regulation or of environmental interest.
Environmental Interest
　An Environmental Interest is the environmental permit or regulatory program that applies to the facility site.
　Example Values: TRI Reporter, NPDES Major, Air Synthetic Minor, Air Minor, TSD, LQG.
EPA Exchange Network FRS
　The database contains information on facilities, sites, monitoring stations, and other place-based areas subject to environmental regulation or of environmental interest. The database includes locational information, industrial code values, organizational information, mailing addresses, contact information and alternative names for a facility.
EHA data warehouse (EHA DW)
Facility Identification Template for States (FITS2)
　FITS2 is a data model that states can use for defining, relating, and integrating information on the identity of their Facility Sites.

IT Industry Standard Terms

Microsoft .NET Framework

The Microsoft .NET Framework is a software component that can be added to or is included with Microsoft Windows operating system. It provides a large body of pre-coded solutions to common

program requirements, and manages the execution of programs written specifically for the framework. The .NET Framework is a key Microsoft offering, and is intended to be used by most new applications created for the Windows platform.

The pre-coded solutions that form the framework's Base Class Library (BCL) cover a large range of programming needs in areas including: user interface, data access, database connectivity, cryptography, web application development, numeric algorithms, and network communications. The functions of the class library are used by programmers who combine them with their own code to produce applications. With version 3.5 of the .NET Framework, the libraries will be released under shared-source Microsoft Reference License.
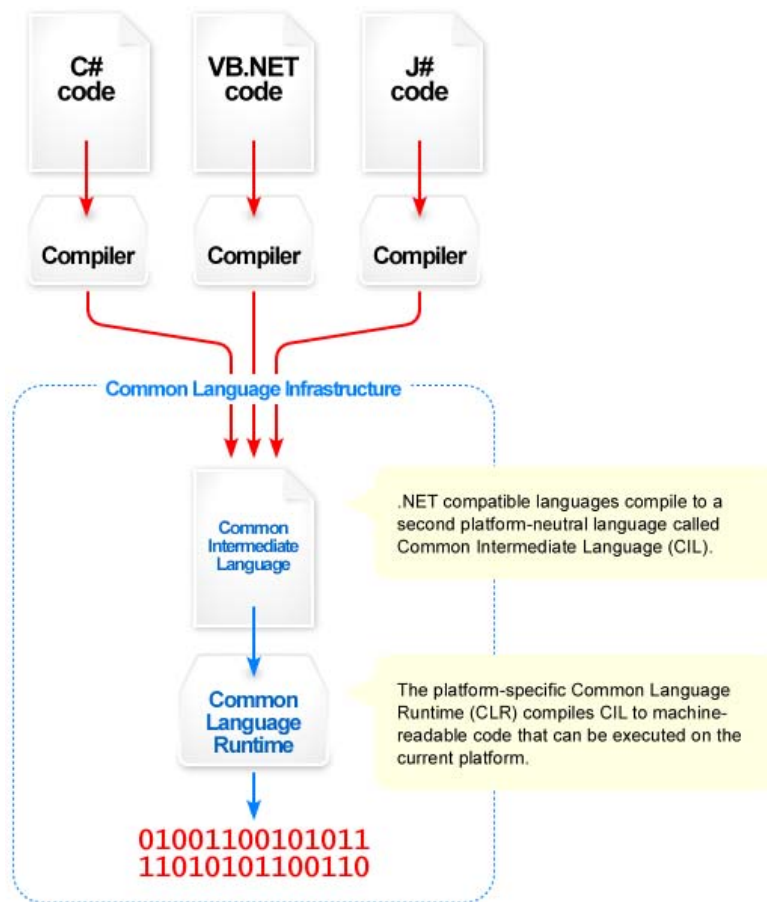
Active Directory

The Active Directory service provides single-logon capability and a central repository for information for your entire infrastructure, vastly simplifying user and computer management and providing superior access to networked resources.

Microsoft SQL Server

Microsoft SQL Server 2005 is a comprehensive, integrated data management and analysis software application that enables organizations to reliably manage mission-critical information and confidently run today's increasingly complex business applications.

What Are Web Services?

Building on the broad acceptance of XML, Web services are applications that use standard transports, encodings, and protocols to exchange information. With broad support across vendors and businesses, Web services enable computer systems on any platform to communicate over corporate intranets, extranets, and across the Internet with support for end-to-end security, reliable messaging, distributed transactions, and more. This has led to the prevalence of XML as the universal language for representing and transmitting structured data that is independent of programming language, software platform, and hardware.

Worldwide Web Consortium (W3C)

The cornerstone for Web services was laid in 1998, when the W3C released XML 1.0. Since then, the W3C has played a key role in the standardization of Web services, releasing such specifications as WSDL, SOAP, WS-Addressing, and Message Transmission Optimization Mechanism (MTOM). Microsoft continues to play an active role in the W3C, holding chairperson seats on the WSDL and WS-Policy Working Groups. Microsoft is also a member of the Web Services Coordination Group.

XML

XML (Extensible Markup Language) is a W3C initiative that allows information and services to be encoded with meaningful structure and semantics which computers and humans can understand. XML is great for information exchange, and can easily be extended to include user-specified and industry-specified tags. XML is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere. XML is a formal recommendation from the World Wide Web Consortium (W3C) similar to the language of today's Web pages, the Hypertext Markup Language (HTML).

XML Schemas

XML Schemas express shared vocabularies and allow machines to carry out rules made by people. They provide a means for defining the structure, content and semantics of XML documents in more detail. XML Schemas can be used to express a schema: a set of rules to which an XML document must conform in order to be considered 'valid' according to that schema.

SOAP

SOAP originally stood for Simple Object Access Protocol, and lately also Service Oriented Architecture Protocol, but is now simply SOAP. SOAP is a protocol for exchanging XML-based messages over computer networks, normally using HTTP/HTTPS. SOAP forms the foundation layer of the Web services stack, providing a basic messaging framework upon which abstract layers can be built. There are several different types of messaging patterns in SOAP, but by far the most common is the Remote Procedure Call (RPC) pattern, in which one network node (the client) sends a request message to another node (the server) and the server immediately sends a response message to the client. SOAP is the successor of XML-RPC, though it borrows its transport and interaction neutrality and the envelope/header/body from elsewhere, probably from WDDX.

UDDI

Universal Description, Discovery and Integration (UDDI) is a platform-independent, XML-based registry for businesses worldwide to list themselves on the Internet. UDDI is an open industry initiative, sponsored by OASIS, enabling businesses to publish service listings and discover each other and define how the services or software applications interact over the Internet. A UDDI business registration consists of three components:

White Pages: address, contact, and known identifiers;

Yellow Pages: industrial categorizations based on standard taxonomies;
Green Pages: technical information about services exposed by the business.

HTML

Hypertext Markup Language is the authoring software language used on the Internet's World Wide Web. HTML is used for creating World Wide Web pages. Typically the HTML coding language used to create hypertext documents for the World Wide Web. In HTML, a block of text can be surrounded with tags that indicate how it should appear (for example, in bold face or italics). Also, in HTML a word, a block of text, or an image can be linked to another file on the Web. HTML files are viewed with a World Wide Web browser.

TCP/IP

Transmission Control Protocol/Internet Protocol   A protocol for communication between computers, used as a standard for transmitting data over networks and as the basis for standard Internet protocols. TCP is one of the main protocols in TCP/IP networks. Whereas the IP protocol deals only with packets, TCP enables two hosts to establish a connection and exchange streams of data. TCP guarantees delivery of data and also guarantees that packets will be delivered in the same order in which they were sent.

Data Warehouse

A data warehouse is a database geared towards the business intelligence requirements of an organization. The data warehouse integrates data from the various operational systems and is typically loaded from these systems at regular intervals. Data warehouses contain historical information that enables analysis of business performance over time. A Data warehouse is a generic term for a system for storing, retrieving and managing large amounts of any type of data. Data warehouse software often includes sophisticated compression and hashing techniques for fast searches, as well as advanced filtering. A database, often remote, contains recent snapshots of corporate data, which planners and researchers can use freely without worrying about slowing down day-to-day operations of the production database.

Demilitarized Zone (DMZ)

Although this sounds pretty serious, a DMZ really is just an area that is outside the firewall. Think of the DMZ as another extension of your office. Typically there is an area in every office that is open to the public, like a waiting room, or lobby and it's staffed by a receptionist. The Lobby is the DMZ. The receptionist is the Web Server. In the lobby, there are pamphlets, forms and other materials that the public is free to access but they must request any additional information from the receptionist.

Addendums

EHA Five-Year-Plan

Conceptual Technology Architecture diagram - *Page 18*

2005 NEIEN Grant - Work Plan

2007 NEIEN Grant - Work Plan

Branch Level IT Roadmap

Grant Status Spreadsheet

Hardware Diagram

Hawaii FY2005 NEIEN Grant Proposal

WORKPLAN

I.   General Project Information

GRANT YEAR/TYPE: FY2005 Implementation Grant

FUNDS REQUESTED: $300,000

AGENCY: State of Hawaii, Department of Health (HDOH)

DUNS NUMBER: 80-993-5679

PROJECT MANAGER: Patrick Felling
                            Compliance Assistance Office
                            Hawaii Department of Health
                            919 Ala Moana Blvd.
                            Honolulu, HI 96814
                            Tel: 808-586-4528
                            Fax: 808-586-7236
                            Email: cao@eha.health.state.hi.us

PROJECT PARTNERS: All formal project partners are within the HDOH Environmental
                            Health Administration (EHA). Most of the IM/IT staff involved in
                            the project are also part of EHA. Coordination with external IT
                            resources (i.e. HDOH CIO and State CIO) will be overseen by
                            Mr. Felling.

ASSISTANCE VEHICLE: Grant

FORM OF FUNDING: Direct Funding

Background & Introduction

The tremendous support EPA Region IX has given HDOH's information management (IM)
program since 2003, combined with the One Stop grant provided from EPA headquarters, has
greatly stimulated our IM efforts. Our recent planning efforts have led to changes in our
organization to better facilitate data system enhancements and to use those IM tools to more
efficiently accomplish our environmental mission.

HDOH received a One Stop grant in 2003, and has recently completed a 5-year Information
Management Plan as part of that work. A significant organizational change resulting from the
planning effort is the enhanced collaboration among IM/IT staff and improved coordination
between program staff and IM/IT staff. A new Information Management Officer position is

being created to oversee this new organizational structure. Figure 1 shows the new IM organization which will coordinate and conduct EHA's data management projects, including the one proposed herein. Figure 2 summarizes the latest version of HDOH's 5-year plan for achieving our long-term information management goals. Phase 1 of the plan has already been completed, and Phase 2 is underway. This proposed project, which is part of Phase 2, has a two-year project period encompassing federal FY2006 to FY2007.

The next step in implementing the plan is to initiate a pilot project to build an integrated, facility-based permitting database between two media programs (air and water) with a single facility index shared between the two programs. Once an "early win" is demonstrated through the pilot, the system's features will be expanded, and then deployed to other media programs. Before the pilot is deployed to the other programs, the facility index must be expanded to include all facilities from the other media programs. Additionally, in preparation for the construction of a Network node, the HDOH facility index must be reconciled against EPA's FRS.

Figure 1. EHA Information Management Framework

EHA Deputy Director
- Establishes business vision
- Sets priorities
- Resolves cross-functional issues
- Assigns project resources
- Decides policies

Information Management Policy Team
- Implements Deputy Director directives
- Assesses policy and procedural impacts
- Identifies issues and risks
- Recommends and decides policies
- Deputy Director has veto power over IMPT

Information Management Coordinating Group
- Chaired by IM Officer
- Implements executive directives
- Defines and manages project plans
- Coordinates implementation
- Identifies and mitigates risk
- Escalates and resolves issues
- Builds consensus and promotes buy-in
- Performs Quality Assurance

EHA IT Group/Project Teams

Functional Work Group
- Defines, develops, and maintains policies and procedures
- Identifies data quality assurance protocol
- Defines business rules and data standards

Information Technology Work Group
- Defines IT policies and procedures
- Implements IT Solutions
- Provides daily EHA IT operational support

Figure 2. EHA Five-Year Information Management Plan
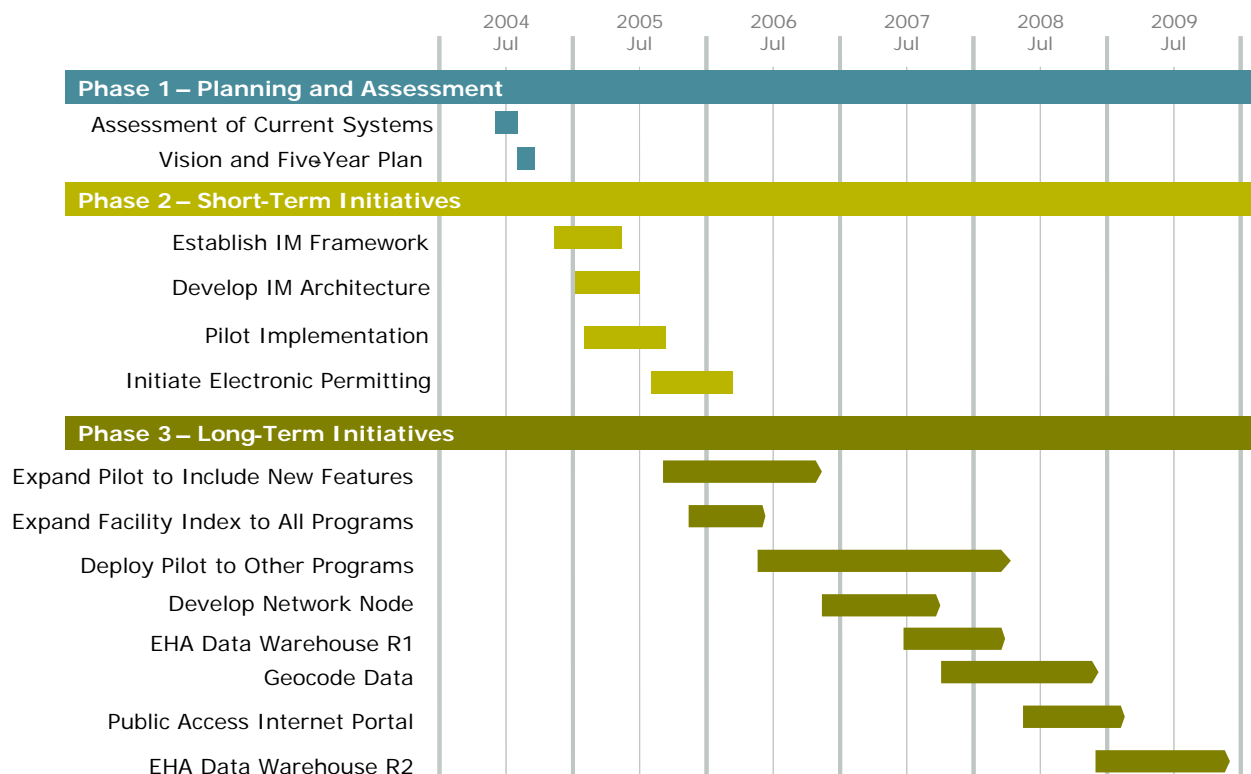
II. Project Purpose, Goals, Milestones and Expected Benefits

The purpose of this project is to build the foundation for, and initiate, a regular and synchronized flow of environmental facility data between HDOH and EPA via the Exchange Network. There are four key goals to accomplish that purpose:

1. Expand HDOH's facility index to include all media programs

2. Reconcile HDOH's facility index against EPA's FRS

3. Establish a Network node within HDOH

4. Initiate regular flows of FRS data between HDOH's node and CDX

See Table 1 for a list of expected benefits and milestones for these goals. The narrative below discusses the flow of tasks for the project.

Goal 1. Expand HDOH's facility index to include all media programs

As part of the integration pilot project, to be completed this year, a facility index will be constructed for the two participating media programs (air and water). For full integration within

HDOH and with EPA, facilities from all other media programs must also be added to the facility index. The first step under this proposal will be to gather facility data from the 70 data systems within EHA and determine if any sites should be excluded from the index. These elements will utilize significant HDOH staff resources from both the programmatic side and from IM/IT staff. A considerable amount of time will be spent on data scrubbing. A major step for EHA will be learning how to manage facility data as a common asset.

Before we compile all facilities into a single facility index (Task 1.4), the tasks in Goal 2 must be completed. After the facility data has been reconciled internally and with FRS, a new, expanded HDOH facility index will be created that is fully compatible with EPA.

Goal 2. Reconcile HDOH's facility index against EPA's FRS

Once HDOH has worked out the compatibility issues internally, we need to reconcile our data set with FRS. The intent of FRS is to provide Web based access "to a single source of comprehensive information on facilities subject environmental regulations or of particular environmental interest". This focus fits in well with HDOH's data integration goals.

The HDOH facility index will be constructed to be compatible with FRS, so a thorough check prior to reconciling is a prudent step. After any compatibility issues are ironed out, HDOH will send our facility data to EPA to be input and reconciled with FRS. It is expected that a number of facilities will be flagged for further review during this process. Once again, the data set will need to be scrubbed to remove duplicates and other errors. After completing this external reconciliation, the next step in the project timeline is Task 1.4.

Goal 3. Establish a Network node within HDOH

In late FY2006, HDOH will be geared up to participate in the National Environmental Information Exchange Network. With a federally-compatible facility index and an up-and-coming integrated data system in place, the final link needed will be a Network node. Hawaii will collaborate with EPA and the Node Challenge grant states throughout this process. We will follow the successes achieved by others before us and select an appropriate node configuration, establish security protocol used successfully in other states, and purchase hardware and software accordingly. A contractor will be hired to construct and test our node in preparation for initiating a data flow to CDX.

Goal 4. Initiate regular flows of FRS data between HDOH's node and CDX

HDOH will have already merged facility data with FRS in a one-time process (see Tasks 2.3 and 2.4), but the data should be kept up-to-date on an ongoing basis via the newly-constructed Hawaii node. Building upon examples from other states, Hawaii will develop a trading partner agreement (TPA) with EPA to prepare for regular data flows. Concurrent to this work, HDOH's facility index will be mapped to the approved XML schema for FRS flows over the Network. Once all is ready, HDOH will request that CDX test Hawaii's node for compatibility with all

nine Exchange Network web methods. Once the tests are complete, a node-to-node exchange will be initiated with FRS. With HDOH's node in production on the Network, the HDOH staff will be trained to maintain the node and our Network flows. At the end of this 4-goal process, HDOH will provide the Exchange Network with a summary of our project successes and lessons-learned.

Table 1. Proposal Goals and Milestones Outline

Goal Task	Target Date	Expected Benefits
Goal 1. Expand HDOH's facility index to include all media programs Task 1.1 Collect facility data from all EHA data systems Task 1.2 Select facilities for inclusion in index Task 1.3 Create process and organization to maintain facility index Task 1.4 Create a single facility index within HDOH for all media programs	 10/2005 12/2005 02/2006 07/2006	Expansion of HDOH's pilot facility index to include all media programs will provide for increased data integration and work collaboration among media programs. Use of a single facility index will increases HDOH's efficiency in managing and protecting Hawaii's environment.
Goal 2: Reconcile HDOH's facility index against FRS data Task 2.1 Analyze facility data to verify compatibility with FRS (e.g. congruency with XML, FITS2, etc.) Task 2.2 Modify HDOH data to be compatible with FRS Task 2.3 Submit HDOH facility data to EPA for reconciliation with FRS Task 2.4 Review FRS reconciliation and resolve facility discrepancies	 01/2006 02/2006 04/2006 06/2006	Ensures data quality and improves consistency with EPA by aligning data elements prior to exchanging data. It will also prepare HDOH for data exchange with EPA's FRS via a Network node.

Goal Task	Target Date	Expected Benefits
Goal 3: Build a Network node within HDOH		Establishes the foundation for future reporting to EPA and other data exchange with HDOH partners. Provides the opportunity to eliminate the need to submit reports on paper or disc to EPA.
Task 3.1 Select a Demonstrated Node Configuration (DNC)	08/2006	
Task 3.2 Select/acquire node hardware/software	10/2006	
Task 3.3 Construct node	01/2007	
Task 3.4 Verify node configuration and security	02/2007	
Goal 4: Flow FRS data from HDOH's node to CDX		Ensures the consistency of facility data maintained by EPA and HDOH, and provides the basis for all future facility-based data exchanges. This step achieves the target of linking previously disconnected data sets through the use of an approved data standard. This first step at real-time data sharing improves consistency of environmental data used to manage environmental resources and report to the public on the state of our environment.
Task 4.1 Obtain FRS flow data standards (e.g. flow configuration documents, data exchange template, latest XML schema, etc.)	08/2006	
Task 4.2 Develop Trading Partner Agreement with EPA	01/2007	
Task 4.3 Map HDOH facility data to XML schema	01/2007	
Task 4.4 CDX tests node	03/2007	
Task 4.5 Conduct initial node-to-node exchange, promoting HDOH node to production status	04/2007	
Task 4.6 Training to ensure HDOH staff are capable of maintaining node and data flows	06/2007	
Task 4.7 Publish project accomplishments and lessons-learned on the Exchange Network for the benefit of other Network partners	08/2007	

Overall Benefits of Project

HDOH will benefit from the direct ongoing exchange of facility data with EPA, allowing our data system to integrate information otherwise unavailable locally. Additionally, the development of Hawaii's node and FRS flow will accomplish a significant step in HDOH's data integration effort by compiling all environmental-interest facilities into a single data set for sharing among media programs and by facilitating agency-wide reporting.

III. Integrated Project Team Participation

Hawaii is not currently participating in an IPT. HDOH's Deputy Director for Environmental Health, Laurence Lau, serves on the Information Management Work Group (IMWG). HDOH will send our lessons-learned to the Exchange Network web site to be shared with other Network partners.

IV. Node Development

In Hawaii's One Stop grant proposal, HDOH expressed the long-term intent to build a Network node. The establishment of a node in HDOH and the initiation of data flows through that node are core elements of this proposal. The expected completion date of the HDOH node is April 2007 (see Table 1, above). The HDOH node is expected to demonstrate all nine Network web methods by that date.

The proposed initial data flow will be a node-to-node data exchange with FRS. Future data flows will be determined based upon priorities within HDOH and EPA. Hawaii is currently researching the potential to be an early adopter of the new ICIS-NPDES system, and to implement e-DMRs. Both of those areas are candidates for subsequent flows.

V. Quality Assurance

The IM Officer will be responsible for quality assurance for this project, based on the overall EHA Quality Assurance Management Plan (currently under review by EPA). Existing standards related to the project tasks (e.g. FITS2, approved Network schema, etc.) will be used. Documentation will be maintained for planning, software design, agreements and metadata. Testing and validation of standards are explicitly stated in the workplan tasks (see Table 1).

VI. Project Budget

Most of the funds to accomplish this project will be used to hire contractor(s) to assist in the creation of the expanded facility index and Network node. The decision has not yet been made whether a single contract will be let for the entire project. Equipment and software costs take up a significant portion as well. There are no personnel, fringe, or indirect costs charged to the grant. The considerable amount of HDOH staff time dedicated to this effort will be an in-kind contribution to the project that is not reflected in Table 2.

Table 2. Proposal Budget

EXPENDITURE CATEGORY	FUNDING AMOUNT
FY2006	
Contractual Services	
Goal 1 (Tasks 1.1-1.4)	$76,000
Goal 2 (Tasks 2.1-2.4)	65,000
Travel (2 trips to NEIEN conferences on the mainland)	4,000
Equipment (1 computer server and database licenses)	20,000
Supplies	0
FY2007	
Contractual Services	
Goal 3 (Tasks 3-1-3.4)	50,000
Goal 4 (Tasks 4.2-4.3, 4.5-4.6)	55,000
Travel (2 trips to NEIEN conferences on the mainland)	4,000
Equipment (1 server and software for node development)	25,000
Supplies (office supplies)	1,000
TOTALS	**$300,000**

VII. Project Relationship to Other Exchange Network Activities

HDOH received a One Stop grant in 2003 to formulate a 5-year IM plan and begin to update media program databases and integrate key datasets. Our pilot project, as mentioned earlier, initiates the database upgrades. As part of the planning process, HDOH hired a contractor (CGI-AMS) to conduct an assessment of current systems (based on interviews and documentation); complete a Business Process Improvement document; and develop the 5-year plan (which was completed in November 2004). As part of the business process improvements, HDOH has initiated a burden-reduction workgroup, conducted a customer satisfaction survey to measure satisfaction and gauge interest in on-line permitting, reorganized the information management structure, and initiated creation of an IM coordinator position to oversee Exchange Network-related projects. The completion dates for other One Stop grant items are listed in Phases 1 and 2 at the top of Figure 1.

This proposal picks up on our One Stop project. Hawaii's long-term plan to build a Network node and use it to send data to EPA; this project starts that effort. The work of this proposal requires close collaboration with EPA, and HDOH will continue our practice of contacting other states to learn the lessons from those who have gone before us.

HDOH representatives occasionally attend Network-related meetings on the mainland, but more often we choose to participate via WebEx and/or teleconference due to the travel distance and cost. HDOH has been following the Node Mentoring Workgroup and other workgroups, and will continue to interact via teleconferences and consulting with the participating states.

Hawaii FY2007 NEIEN
Grant Proposal

WORKPLAN

Prepared by John F. Diehm
Environmental Information Manager
Hawaii Environmental Health Administration

HAWAII STATE DEPARTMENT OF HEALTH
HEALTHY PEOPLE · HEALTHY COMMUNITIES · HEALTHY ISLANDS

General Project Information

Grant Year/Type: FY2007 Implementation Grant

Funds Required: $225,000

Agency: Hawaii, Department of Health (HDOH)

DUNS Number: 80-993-5679

Project Manager: John F. Diehm
                           Environmental Information Manager
                           919 Ala Moana Boulevard, Suite 219
                           Honolulu, Hawaii 96814
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Project Partners: All formal project partners are within HDOH
                           Environmental Health (EHA). Most IM/IT Staff
                           involved in the project are DOH/EHA. Coordination
                           will be overseen by Project Manager.

Assistance Vehicle: Grant

Funding Form: Direct Funding

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Background & Introduction

HDOH received a OneStop Grant in 2003 and an NEIEN Grant in 2005. The OneStop grant funded a business and technical assessment as well as a series of recommendations that would position the department to improve its ability to leverage technology, improve its information management practices and integrate its internal stake holders and trading partners. This assessment; referred to as our "Five-Year-Plan" initially recommended hiring an Information Officer to manage projects, utilize outside resources, and re-architect the information systems throughout the entire administration.

The initial phases of the Five-Year-Plan are currently being implemented and Hawaii is proud to announce that as of October 2006, our Central Data Exchange (CDX) Node is on-line and in full production and a first revision of Facilities (FRS Data Flow) is has been submitted and approved the Exchange Network. Now that the core technology is in place our goal is to improve the internal practices referred to in the Grant Solicitation Notice by providing training to our internal IT Staff; Implementing State-Of-The-Art technologies and becoming a model for environmental and human health systems throughout the United States through innovative designs and industry best practices.
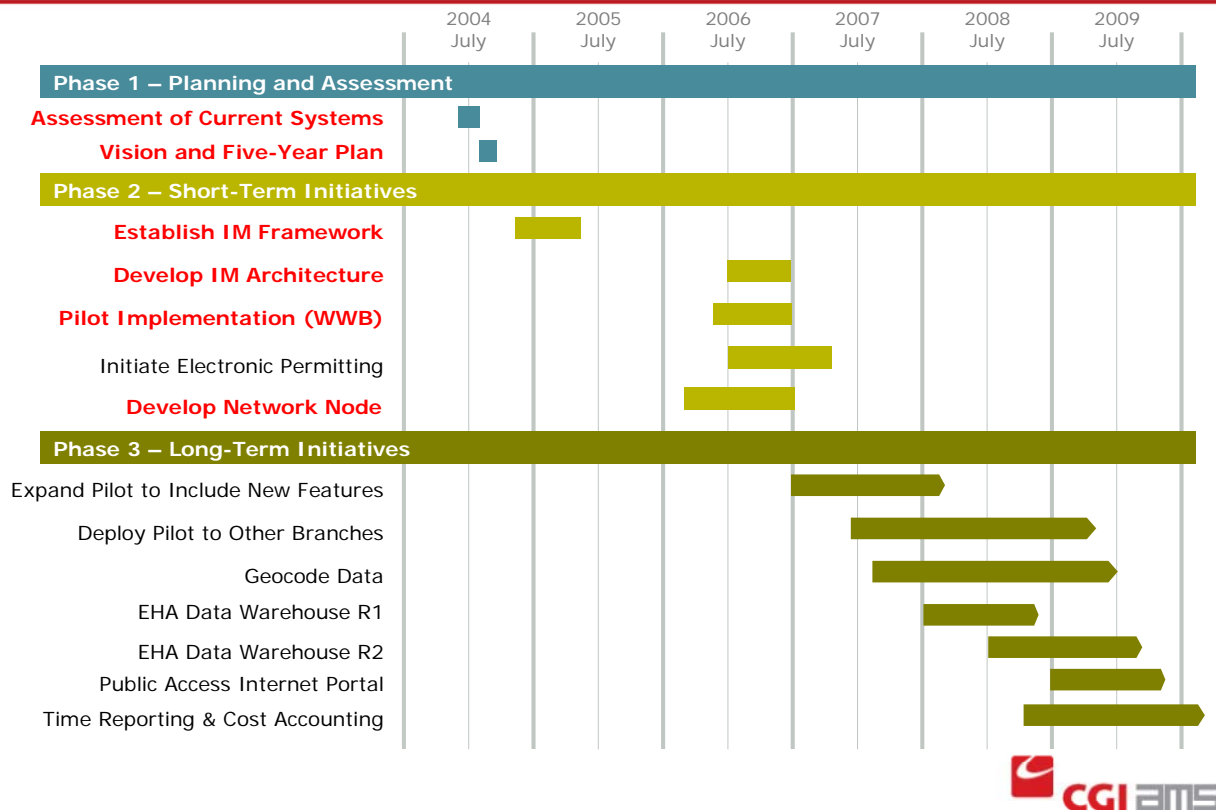
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Five-Year Information Management Plan

Session III

Preliminary Roadmap

	2004 July	2005 July	2006 July	2007 July	2008 July	2009 July
Phase 1 – Planning and Assessment						
Assessment of Current Systems						
Vision and Five-Year Plan						
Phase 2 – Short-Term Initiatives						
Establish IM Framework						
Develop IM Architecture						
Pilot Implementation (WWB)						
Initiate Electronic Permitting						
Develop Network Node						
Phase 3 – Long-Term Initiatives						
Expand Pilot to Include New Features						
Deploy Pilot to Other Branches						
Geocode Data						
EHA Data Warehouse R1						
EHA Data Warehouse R2						
Public Access Internet Portal						
Time Reporting & Cost Accounting						

CGI ams

1

Items in red have been completed and identify the progress the State of Hawaii has made as of the November, 2006. Note that the Environmental Information Manager position is instrumental in the success of these deliverables and was not filed until January, 2006. Also noted is that some of these deliverables are associated to the OS-83135701-0 grant awarded to the state for information technology initiatives.

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Project Goals & Milestones

The purpose of this grant application is to fund additional technical initiatives related to the EPA's Central Data Exchange. There are three key goals that would position our administration to align itself better with national EPA technologies in the future:

Milestones:
1. Integration of State Lab Systems
2. Implementation of additional CDX Data Flows
3. Provide training to our internal Staff

The Exchange Network Grant Program also supports a variety of activities, including the development of common data standards, formats, and trading partner agreements for sharing data over the Exchange Network and implementation of collaborative, innovative uses of the Exchange Network. It also supports the standardization, exchange, and integration of geospatial information to address environmental, natural resources, and related human-health issues.

The State of Hawaii EHA has recently reached out to other state and federal partners to discuss enhanced data sharing that we hope to deliver via our network node. The node offers a secure environment that could potentially allow us to share data with groups like state and county governmental agencies, universities and other educational institutions as well as private environmental advocacy groups that have shown an interest in improving the ability to share mission critical health and environmental information.

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Goal 1 – Integrated Lab Information Management System

As part of a department wide information management objective both human health and environmental test results will be tracked using a new Lab Information Management System (LIMS) expected to be installed by year-end 2007. Several key stake holders in the states environmental business units would receive lab results real-time which would ultimately reduce administrative burdens and provide improved integration with our state lab. There are several stake holders which regulate the environmental community based on lab results for both permitting and enforcements.

	EHA Shared Data												
	State Lab	F&D	NRIAQ	SAN	VCB	HEER	EPO	CAO	CAB	CWB	SDWB	SHWB	WWB	ERO
Hazard Eval. & Emergency Response	✓	✓	✓	X	✓		✓		✓	✓	✓	✓	✓	✓
Environmental Planning Office	✓	X	X	✓	✓			X	✓	✓	✓	✓	✓	X
Compliance Assistance Office	X	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Clean Air Branch														
Clean Water Branch	✓	X	X	X	X	✓	✓	✓	✓		✓	✓	✓	X
Safe Drinking Water Branch	✓	X	X	X	X	✓	X	X	X	✓		X	✓	X
Solid & Hazardous Waste Branch-UST	X	X	X	X	X	✓	✓	X	✓	✓	✓		✓	X
Solid & Hazardous Waste Branch-SW	X	X	X	X	X	✓	✓	X	✓	✓	✓		✓	✓
Solid & Hazardous Waste Branch-HW	X	X	✓	X	X	✓	✓	X	✓	✓	X		✓	X
Wastewater Branch	X	✓	X	X	X	X	✓	X	X	✓	✓	✓		X
Environmental Health Services Division														
Lab Division		✓	X	✓	X	X	✓	X	✓	✓	✓	X	✓	X

This matrix identifies the program offices that interact with the lab and provide lab testing requests that enhance environmental decision-making. Integration with LIMS system would reduce or eliminate manual intervention, increase data usage between partners, and would provide an opportunity to develop unique analytical tools for data analysis.

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Goal 2 – Additional Central Data Exchange (CDX) Data Flows

As the exchange network matures additional data flows are being released as production ready. This grant opportunity would allow Hawaii to proactively address these new flows and implement software and hardware solutions that are administered by the EPA. Some of the data flows, such as Safe Drinking Water (SDWIS) and National Pollutant Discharge (NPDES) require states to install application software provided by the EPA. In some cases the software applications use tools and operating environments that don't adhere to our internal Microsoft centric standards.

Proposed Goals and Milestones

Goal 2	Task	Target Date	Benefit
LIMS Lab Information Management System	Task 1.1	03/2008	Integration of lab requesting and resulting as well as interaction with external partners in our human health group.
NEI National Emissions Inventory	Task 2.1	06/2008	The implementation of the NEI data flow is one of the production data flows currently in place on the exchange network. By integrating this flow as part of our network node this will eliminate the manual process currently being performed to supply the EPA with emissions data.
SDWIS Safe Drinking Water Info. System	Task 2.2	09/2008	Implement CDX node feed and eliminate manual upload process. Move data to a secured relational database with real-time connectivity to Hawaii node.
AQS Air Quality System	Task 2.3	12/2008	Implement ambient air quality monitoring data to CDX.
TRI Toxic Release Inventory	Task 2.4	06/2009	Implement simultaneous submission of TRI reports to both EPA and states via CDX.

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Goal 3 – Training & Mentoring

Proposal Budget

Expenditure Category	Funding Amount
FY2008	
Contractual Services	
Task 1.1 (LIMS Integration)	$50,000
Task 2.1 (NEI)	25,000
Task 2.2 (SDWIS)	25,000
Task 2.3 (AQS)	35,000
Travel (NEIEN Conference)	5,000
Training (IT Resource Development)	9,500
Equipment	35,000
Supplies	500
FY2008 Total	**$125,000**

Expenditure Category	Funding Amount
FY2009	
Contractual Services	
Task 2.4 (TRI)	$15,000
Travel (NEIEN Conference)	5,000
Training (IT Resource Development)	9,500
Equipment	10,000
Supplies	500
FY2009 Total	**$100,000**

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The information below describes the steps taken to upgrade systems within a branch.

- Identify Exchange Network data flows relative to your branch
- Analyze any Exchange Network XML schemas for associated data flows
- Identify all permits within the branch
- Identify all users/sections that manage information for the permits
- Identify existing data systems currently used to manage permit information
- Identify and detail the metadata for each data system
- Identify and detail all data elements on the permit forms
- Detail the workflow associated to each permit
- Identify overlaps in workflow between users/sections
- Document any recommendations to the workflow
- Review FRS & OneStop data model with EIM
    - Identify any existing Environmental Interests in OneStop
    - Add required Environmental Interests needed to support workflow model
    - Install a local copy of the OneStop data model
    - Verify table naming conventions with EIM
- Develop a logical data model to support the existing or new workflow
- Develop a "mock up" interface based on the logical data model
- Analyze feedback from "mock up" and adjust logical model as necessary
- Develop a normalize physical data model in association with CDX schemas
    - To any extent leverage CDX schema naming conventions for tables
    - To any extent leverage CDX schema naming conventions for columns
- Develop data migration packages (SSIS) to populate the physical data model
- Repopulate physical data model frequently to support proof of concept

Information Management Grants
November 19, 2007

Project Name	Award	Balance	Encumbered	Project #	Grant End	Comments
Environmental Information Exchange Grant (One-Stop)	$500,000	**$248,285.53**	**$3800.xx Need final amount for EPO GIS workstations**	**000467**	7/08	• AMS 5-Year Plan (pd) • 5 PC's (about $8k) • Use for e-Permitting (Air/Water) • Suggested for IT support services RFP (Microsoft recommended) • About $240k left
2005 Hawaii Network Implementation (Node) Grant	$300,000	**$266,883.18**	**$112,000.00 New Position Money**	**000370**	Original 7/08. Now 09/30/08 with the extention.	• Facility Centric (focused on facility consolidation, facility migration). • $112k converted from professional services to personnel for IT exempt position. • About $154k left • Dan Denault Group, LLC PO drafted for services to implement EPA information systems and software until 1/31/09.
2007 Network Node Grant	$225,000	**$225,000.00**	**$150,000.00 Windsor Solutions** **Additional Node Flows**	**000395**	9/30/09 2 years	• Windsor $150,000 PO – node flows • Estimates: TRI - $17k NEI - $14k AQS - $40k WQX $30k SDWIA - ? • About $50k left

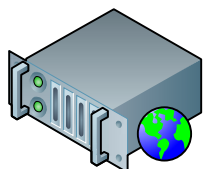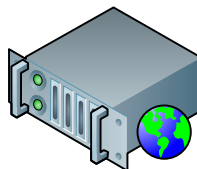# Current IT Infrastructure
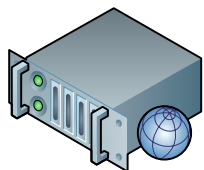
HISO | EMD | CAB

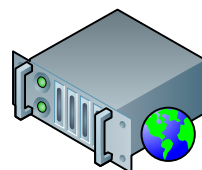**HICDX**
166.122.138.237
IIS 6.0
SQL 2005
.NET Framework 2.0

DOH Firewall

OneStop
10.164.30.59
IIS 6.0
SQL 2005
.NET Framework 2.0

CABTESTWEB
172.16.31.185
IIS 6.0
.NET Framework 1.1

EMDWEB-DMZ
166.122.138.226
IIS 6.0
.NET Framework 2.0

EMDWEB-APPL
10.164.30.57
IIS 6.0
.NET Framework 2.0

CAB-SQL200Test
172.16.31.98
SQL 2000
.NET Framework 1.1

EMDWEB-DATABASE
10.164.30.56
SQL 2000
.NET Framework 2.0

CABTestSQLServe
172.16.30.111
SQL 2005
.NET Framework 2.0

New IT Infrastructure

HISO | EMD | CAB

HICDX
166.122.138.237
IIS 6.0
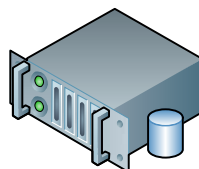SQL 2005
.NET Framework 2.0

DOH
Firewall

OneStop
10.164.30.59
IIS 6.0
.NET Framework 2.0

EMD-SQL-01
10.164.30.XX
SQL 2005
.NET Framework 2.0

CAB-WEB-01
172.16.31.185
IIS 6.0
.NET Framework 1.1

EMDWEB-DMZ
166.122.138.226
IIS 6.0
.NET Framework 2.0

EMDWEB-DATABASE
10.164.30.56
SQL 2000
.NET Framework 2.0

EMD-WEB-01
10.164.30.57
IIS 6.0
.NET Framework 2.0

CAB-SQL-01
172.16.31.98
SQL 2000
.NET Framework 1.1

CAB-SQL-02
172.16.30.111
SQL 2005
.NET Framework 2.0